Purchase Drivers of Canadian Consumers of Local and Organic Produce

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Abstract. In recent years, the new trend for local and organic produce has transformed the landscape of fruit and vegetable purchasing. To this effect, “local” and “organic” logos have become the norm in many retail outlets. To examine the effects of different “local” and “organic” logos on Canadian consumers, a consumer survey was used to identify preferences for various external attributes and to identify consumer segments within the buyers of both local and organic purchasers. Our results indicate that the “Foodland Ontario” logo has the largest effect on likelihood of purchase and also increases willingness to pay within the overall sample. Furthermore, there are gender, region, and income differences associated with the likelihood of purchase and willingness to pay given various logos. Through this study, three consumer segments were identified, “Confident in Produce Produced in Ontario,” “In Organic We Trust,” and “Socially Responsible Locavores,” each of which has their own preferences for external characteristics.

The marketplace for horticultural commodities is extremely competitive, especially in regard to fresh fruit and vegetables. A glance at any supermarket shelf provides a plethora of choices with varying quality assurances and production certifications. So given the wide range of choices available, a central question for growers and retailers is why do consumers purchase the produce they purchase. As noted by Moskowitz and Krieger (1995), flavor, texture, and appearance are primarily used by consumers to assess acceptance. However, in regard to produce, a measure of internal quality is challenging for consumers to measure at the point of purchase. To further complicate the issue, the next purchase of the same good may or may not provide the same quality experi-

ence given changing suppliers or subtle differences between goods. In other food products, branding has been used as a signal to signify high quality; however, as a result of quality variations and supply issues, branding of produce is difficult (Richards, 2000).

Given the difficulty for consumers to use internal quality measures (i.e., flavor and texture) to aid in the purchase decision, consumers must use external stimuli to make an informed decision, namely appearance. However, appearance may or may not directly relate to quality. Ever buy a beautiful-looking peach that was bland? Furthermore, most produce tends to have a similar external appearance, which is defined by the retail store. For instance, many retail stores specify that citrus be of orange color although orange fruit may be unripe compared with their “green” alternatives (Poole and Gray, 2002). Because quality is generally unknown and appearance is a subjective measure, at best, of potential satisfaction of produce, other factors are most likely playing a role in the consumer’s purchase decision. Therefore, understanding the key factors that drive the purchase decision for Canadian produce consumers is essential.

The main objective of our research was to identify how various external attributes associated with fruits and vegetables affect consumer likelihood of purchase and willingness to pay (WTP) for consumers already purchasing local and organic produce. External attributes included type of product, intrinsic benefits, information signals, availability, occasion, and

emotional response (Table 1). Of these attributes, our primary focus was to better understand how information signals (i.e., local and organic certification logos) affect both likelihood of purchase and WTP and to identify consumer segments within the market.

Our interest in the effectiveness of local and organic labeling is twofold. First, the sheer sales volume and increased industry interest have been substantial making the need for more information a necessity. For instance, the Canadian market for certified organic products topped \$1 billion Canadian in 2007 and is increasing with 40% moving through mainstream supermarkets (Agriculture and Agri-Food Canada, 2010). In regard to industry movement, Loblaw Companies Limited, Canada’s largest food distributor, sourced 24% of their produce locally in 2008 with 40% locally sourced during the summer (Britnell, 2010). Furthermore, carrying more local and organic products has been identified as a means for smaller, independent grocery stores to compete against large discount stores such as WalMart (DeLory, 2010).

Second, the rise of a reinvigorated movement for both local and organic foods has led to new marketing and certification labels being introduced. Of particular interest was understanding the impact of the provincial “Foodland Ontario” logo compared with other logos such as “Canada Organic,” “Verified Organic,” “Greenbelt,” and “Local Food Plus,” which are newer programs. “Foodland Ontario” was introduced by the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) in 1977 with the goal of providing consumers with an easy way to identify Ontario foods (OMAFRA, 2010). A 2007 study by OMAFRA indicated a 94% recognition rate for “Foodland Ontario” (OMAFRA, 2010). However, the “Canada Organic” logo was introduced in June 2009 and guarantees that products carrying the logo are grown based on Canadian Organic Standards (Canada Organic Growers, 2010). The “Greenbelt” logo, on the other hand, is a symbol that is used to represent and market an agricultural conservation area that encompasses much of the Niagara Peninsula (≈728,000 ha) and is not used as a part of product marketing efforts but will serve as an interesting comparison for the product-related logos. Through a better understanding of consumers’ use of these logos, both industry and policymakers can make more informed decisions in the future regarding increasing local and/or organic consumption.

In addition, our research adds to the present literature in several ways. First, we take one of the first looks at Canadian consumer preference and WTP for fruits and vegetables, specifically in regard to on-the-market local and organic certification labels. Cranfield et al. (2009) examined Canadian consumer preference for organic and local labeling; however, their work evaluated consumer preference for production standards (i.e., institutions granting and monitoring organic regulations), whereas we evaluated the effectiveness (in both WTP and likelihood of purchase) of currently available logos. Second, we not only evaluated the

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Table 1. Elements used in the vignettes evaluated by consumers.

Type of produce	Perceived intrinsic benefits	Information signals	Availability	Occasion	Emotional response
Picture of carrots	So fresh you'd think it was grown right in the store!	"Canada Organic" logo	No need to visit many different vendors to get the products you love...available at all major supermarkets for your shopping convenience!	You can easily incorporate this product into your everyday food choices!	Make an environmentally friendly choice, ensure a better world tomorrow!
Picture of salad (lettuce only)	Because you and your family deserve nutritious food!	"Verified Organic" logo	Available at farmers markets!	Perfect treat to serve guests...show them how much you care!	Feel better about making a healthy choice!
Picture of potatoes	You won't believe how good it tastes!	"Foodland Ontario" logo	Available at specialty stores near you!	Feel great serving these products for holidays or special occasions!	Feel a sense of peace of mind eating and serving these products!
Picture of apples	Good food is good food regardless of where it's from and/or how it's produced.	"Greenbelt" logo	Available exclusively at health stores!	Perfect to serve to your family...show them how much you care!	Feel good about investing in this product...support of the economy!
Picture of strawberries	The great quality is undeniable!	"Local Food Plus" logo	Available everywhere you shop!	This product is best when it's in season!	Feel like you're making a difference!
Picture of garlic	With an appearance so attractive you won't question your purchase!	This product was produced using both local and organic methods	Available at discount supermarkets for the money conscious shopper.	To encourage more people to experience this product we've lowered our prices!	Encourages equitable treatment of workers and producers!

WTP for local and organic labeling, but also examined their effect on the likelihood of purchase. A majority of previous research has determined the effectiveness of both local and organic labeling as important only if it generates a premium over the base price; however, the goal of some labeling may not be to gain a premium, but rather to increase quantity sales. For this reason, articles solely focusing on WTP may be underestimating the true effect of a product attribute, e.g., local or organic logo. Third, we used a conjoint analysis methodology commonly used in the business sector (concept based) but has seen little use in the academic sector (product optimization based). Fourth, instead of focusing on a single product, we introduced numerous fruits and vegetables into the conjoint design to provide a more realistic purchasing experience for respondents.

Materials and Methods

To facilitate a wide range of consumers with varying demographic and socioeconomic profiles, we used an online survey to solicit consumer preferences and WTP for numerous product profiles. Using a consumer database from GMI in Toronto, Canada, potential respondents were contacted by e-mail and asked to participate in the study. The e-mail invitation contained only a small amount of information regarding the study's objective so as not to introduce bias.

Given that one of the primary objectives of this study was to better understand the drivers of purchase for those consumers who are already purchasers of local and organic, we used a screening question related to fruit and vegetable purchase habits and consumption. To qualify for the survey, respondents had to have purchased organic fruits or vegetables at least once in the last 3 months and fruits or vegetables from Ontario at least once in the last 3 months. We also targeted the survey to the 25 to 60-year-old age group given a recent study conducted in Ontario showed that this group was interested in organic production (The Strategic Counsel, 2009). Further refinements to the sample included sampling one-third of respondents from the Hamilton/Niagara area and two-thirds from Toronto to capture effects associated with a large metropolitan area and weighting the number of females to males at a ratio of 6:4, which is consistent with demographics of grocery shoppers in the area of the survey (Gooch et al., 2009). A total of 1123 consumers took the screening question with 557 having purchased organic and Ontario-grown produce at least once during the last 3 months. Of the 557 that qualified to take the conjoint part of the survey, 278 (or 50%) completed the survey.

Methodology

To value attributes considered important by consumers during the purchase decision of fruits and vegetables, we used conjoint analysis. Conjoint analysis has been used extensively to look at a wide variety of fruits and vegetables: apples (Baker, 1998, 1999; Baker

and Crosbie, 1994; Manalo, 1990), bell peppers (Frank et al., 2001), citrus (Campbell et al., 2004, 2006), strawberries (Darby et al., 2008), and tomatoes (Lin et al., 1996). As noted by Moskowitz et al. (2006a) and as can be seen in the previous cited literature, conjoint analysis has been traditionally used for solving problems associated with a specific product relying heavily on experimental design. However, by using a method called categorical appraisal, we can move away from the product-specific approach into an area where we strive to identify areas of liking instead of optimizing specific product development (Moskowitz et al., 2006a).

To better understand the drivers associated with purchasing, we need to first identify the factors considered to be important in the decision-making process. After consultation with industry experts, focus groups, and examination of the literature, numerous attributes (and corresponding elements) were identified, including: perceived intrinsic benefits, information signals, availability, occasion of purchase, and emotional response (see Table 1). Also, we included several different types of produce to better mimic the decision process within the store.

Given the number of attributes and levels considered to be important in the purchasing of fruits and vegetables, a partial profile design was used to measure preference for each attribute and level given that a complete profile design would be impractical. We, therefore, used IdeaMap® (Moskowitz Jacobs, Inc., White Plains, NY) to arrange the experimental design such that each respondent evaluated a unique set of 48 concepts with each concept consisting of between two and four attributes with the attributes being represented by only a single element from the attribute category (i.e., only one element from each column in Table 1). The product profiles were created by systematically combining elements of different categories according to a factorial design (Moskowitz et al., 2006b). Although each respondent evaluated a different set of attribute combinations, the IdeaMap® design algorithm allows for individual-level modeling. Of note, IdeaMap® has been used by numerous Fortune 500 companies to further their business objectives.

After passing the screening question, as described earlier, the respondent was asked to provide both a likelihood of choosing score and WTP. The likelihood of choosing was measured by a 9-point scale in which 1 = "not at all likely" and 9 = "very likely." WTP was measured by a 5-point scale in which 1 = \$1.50/lb or less, 2 = \$1.51 to \$3.00/lb, 3 = \$3.01 to \$4.50/lb, 4 = \$4.51 to \$6.00/lb, and 5 = \$6.01/lb or greater in Canadian dollars. During the actual survey, prices were provided in dollars per pound, which are commonly used in retail settings although metric is the system of measurement in Canada. After completing the conjoint section of the survey, the respondents answered questions relating to demographics, socioeconomics, and attitudes associated with purchasing local/organic produce.

Likelihood of purchase analysis. The first step in the analysis was to transform the liking

scale associated with likelihood of purchase into category assignments of consumers that “are likely to purchase” and “not likely to purchase.” As noted by Hughson et al. (2004), this can be accomplished by assigning a 0 value to ratings 1 to 6 on the Likert scale and a 100 value for ratings between 7 and 9. After assigning consumers into their respective groups, we used a linear probability model (LPM) to determine the key drivers that increase/decrease a consumer’s decision to purchase produce. The LPM was modeled as follows:

$$y_i = \sum_{j=1}^{48} \beta_j X_{ji} + \epsilon_i \quad [1]$$

in which y denotes the membership category with a value of 0 if “lack of interest” and 100 if “interested in” the product, β denotes a vector of coefficients or the conditional probability of a concept being rated as interesting, X represents the attribute levels that made up the product being evaluated, and ϵ is a random error term with mean 0 but with a non-normal distribution.

As noted by Griffiths et al. (1993), the LPM has flaws that ordinarily make it unsuitable as an analysis technique, namely the lack of normality of the error term and a failure of predicted probabilities to be bounded between 0 and 1. Generally, other modeling techniques such as probit and logit are preferred to the LPM; however, given the objectives of this article, the LPM was preferred to other modeling specifications. LPM was preferred given our need for a model that allowed for individual-level modeling. Individual-level models were preferred for two reasons: 1) probit and logit have a tendency to fail to converge with smaller sample sizes; and 2) averaging across market segments with different utility functions (preferences) can provide biased results (Bretton-Clark, 1992). Furthermore, given we are interested in measuring the impacts of our concepts and not predicting if a consumer will fall into a category based on the segment, the lack of bounding between 0 and 1 has little bearing on our model choice. Also, because the LPM estimates are unbiased, it is a viable model for the analysis at hand.

After estimating the LPM, the coefficient estimates can be interpreted as the additive conditional probability of a respondent being interested in a concept. As identified by Hughson et al. (2004), we can measure the impact of an element by comparing the conditional probability to the following scale: greater than 15 corresponds to extremely impactful statement; 10 to 15 corresponds to a very important statement; 5 to 10 corresponds to a significant statement; and 0 to 5 corresponds to a statement that is probably irrelevant. Negative values can be viewed in the same light with the same scales, except for being negative, as shown previously, whereby a concept has a negative effect on a respondent’s interest.

Willingness to purchase analysis. To facilitate data analysis, each WTP was assigned at the minimum value, except for the lowest value, which was assigned the median (i.e.,

1 = \$0.75, 2 = \$1.51, 3 = \$3.01, 4 = \$4.51, and 5 = \$6.01). For several variables, the dollar value assigned in place of the rating value moved the estimated coefficient slightly; however, in each case, the overall results did not change given the confidence intervals stayed constant, which gives credence to the robustness of the results. Numerous techniques have been used to analyze conjoint data, including Tobit, probit/logit, and ordinary least squares regression (OLS) with OLS being the most prominent analysis technique in both academic and business studies. Given our desire to model individual-level models, OLS provides the best means for obtaining individual estimates given convergence issues with the other methods. Therefore, the model was estimated as follows:

$$wtp_{ji} = \sum_{j=1}^{48} \beta_j x_{ji} + \epsilon_i \quad [2]$$

in which wtp is the WTP for the j^{th} product profile by the i^{th} respondent, whereas x represents the j^{th} product profile evaluated by the i^{th} respondent.

After estimating the individual-level OLS models, respondents with like preferences (i.e., like WTP values for certain elements) were grouped into segments. Identification of the exact number of segments is subjective. By using the K-means procedure within XLStat® (Addinsoft, New York, NY) and the recommendations of Kotler and Armstrong (2001) that market segments need to be measurable, accessible, substantial, differentiable, and actionable, we identified three consumer marketing segments.

Understanding the characteristics associated with a consumer segment can be useful in identifying how to efficiently target groups. To better understand the consumer segments, we used a multinomial logit model (MNL) in which the dependent variable was the consumer’s segment and the independent variables were the demographic, socioeconomic, and purchase behaviors of a consumer. From the MNL model, we calculated the marginal effects. Marginal effects are interpreted differently depending on whether the explanatory variable is continuous or categorical. For continuous variables, the marginal effect is interpreted as a percentage change in the likelihood of segment membership given a 1-unit increase from the mean, whereas the categorical interpretation is a percentage change in the likelihood of segment membership given the category of interest is displayed (e.g., male respondent instead of female respondent). From the marginal effects we can develop consumer profiles to better aid in effective targeting efforts.

Results

The results of this study provide several interesting findings. First, success of a program is not defined by only increased premiums, but increased likelihood of purchase has the potential to be just, if not more, powerful. Second, labeling effectiveness can be

seen across key demographics. Third, three consumer marketing segments, and their key characteristics, were identified, namely “Confident in Produce Produced in Ontario,” “In Organic We Trust,” and “Socially Responsible Locavores.”

Importance of logo across key demographic variables. Because respondents with different backgrounds might have varying views on which concepts are important, we examined differences by gender, region, and income level (Tables 2, 3, and 4). Only the results for the local and organic logos are reported given space limitations and the primary objective of this article; however, results associated with the other variables are available on request. Examining Table 2 we can see that the “Foodland Ontario” logo has a significant impact on increasing the likelihood of purchase for women only. Given our criterion set forth previously, that probabilities greater than or equal to 5 represent significant elements, we can see by the 95% confidence interval that the true probability lies between 8 and 18, implying that with a high degree of certainty, “Foodland Ontario” has a significant impact on female intention to purchase. In regard to males, we do not see any significant difference given our cutoff value of 5 was within the confidence interval, -1 to 12. No other label played a significant role in increasing a respondent’s interest in purchasing. Evaluating WTP, we see that women are willing to pay a premium for almost all logos with the “Verified Organic” label having a \$0.23 premium above the base price of \$1.83/lb (12.6% increase) compared with the “Foodland Ontario” label at \$0.11/lb (6% increase), whereas males were not willing to pay more for any logo.

We can see that when we examine respondents by region (Table 3), “Foodland Ontario” again provides an increase in the likelihood of purchase for Toronto residents only. None of the labels increase the likelihood of purchase for the respondents from the Niagara region. A probable reason for the lack of label impact within the Niagara region is that the Niagara region is a central hub for horticultural production within Canada given the milder climate (increased local production) associated with the area and the ban on residential pesticide use (move to “go green” within Ontario), thereby inundating the market with both “local” and “green” cues, which limits the effectiveness of local and organic labels. When examining the WTP, we see that certain labels do provide a premium in the Toronto area, namely those associated with organic labeling (e.g., “Verified Organic” logo receives a \$0.17 premium).

With a closer look we can see that the “Foodland Ontario” logo does not provide a price premium for the Toronto respondents, but as noted previously, it does provide an increase in the likelihood of purchase. This finding helps to verify our initial hypothesis that judging program effectiveness by a price premium may be misleading because consumers, at least in Toronto, have increased interest given the “Foodland Ontario” label but are not WTP more. A potential

Table 2. Effect of local/organic label on the likelihood of purchase and willingness to pay for fruit and vegetables by gender.

Respondents per category	Linear probability model: impact of element ²					
	Female			Male		
	65%			35%		
	Avg	Lower confidence limit	Upper confidence limit	Avg	Lower confidence limit	Upper confidence limit
Constant	53	44	62	63	50	76
"Canada Organic" logo	8	2	14	-4	-11	3
"Verified Organic" logo	5	0	10	-6	-13	0
"Foodland Ontario" logo	13	8	18	5	-1	12
"Greenbelt" logo	2	-3	7	-2	-8	5
"Local Food Plus" logo	8	3	14	0	-6	7
Generic local and organic logo	8	3	14	1	-6	8

Respondents per category	Linear regression model: willingness to pay (per pound) ^{3,4}					
	Female			Male		
	Average (CND)	Lower confidence limit	Upper confidence limit	Average (CND)	Lower confidence limit	Upper confidence limit
Constant	1.83	1.62	2.03	2.00	1.71	2.29
"Canada Organic" logo	0.21	0.10	0.33	0.05	-0.09	0.20
"Verified Organic" logo	0.23	0.12	0.33	0.11	-0.03	0.25
"Foodland Ontario" logo	0.11	0.00	0.22	0.07	-0.08	0.21
"Greenbelt" logo	0.08	-0.03	0.18	-0.10	-0.26	0.07
"Local Food Plus" logo	0.13	0.01	0.25	-0.06	-0.21	0.09
Generic local and organic logo	0.19	0.08	0.29	-0.03	-0.14	0.09

²Within the linear probability results, bold indicates that the confidence interval does not include 5, which implies that the element had, at a minimum, some significant impact on the likelihood of purchase.

³Within the linear regression results, bold indicates that the confidence interval does not include 0, which implies that we are confident, at the 95% level, that the element provided a significant premium/discount.

⁴CND = Canadian dollars.

Table 3. Effect of local/organic label on the likelihood of purchase and willingness to pay for fruit and vegetables by region.

Respondents per category	Linear probability model impact of element ²					
	Toronto			Niagara region		
	77%			23%		
	Avg	Lower confidence limit	Upper confidence limit	Avg	Lower confidence limit	Upper confidence limit
Constant	60	52	69	43	28	59
"Canada Organic" logo	4	-1	9	4	-6	14
"Verified Organic" logo	0	-4	5	3	-6	12
"Foodland Ontario" logo	10	6	15	9	2	17
"Greenbelt" logo	-1	-6	4	7	-2	15
"Local Food Plus" logo	5	0	10	6	-4	15
Generic local and organic logo	5	0	10	8	0	16

Respondents per category	Linear regression model willingness to pay (per pound) ^{3,4}					
	Toronto			Niagara Region		
	Average (CND)	Lower confidence limit	Upper confidence limit	Average (CND)	Lower confidence limit	Upper confidence limit
Constant	1.95	1.74	2.16	1.67	1.33	2.01
"Canada Organic" logo	0.16	0.05	0.27	0.15	-0.06	0.36
"Verified Organic" logo	0.17	0.06	0.28	0.25	0.08	0.42
"Foodland Ontario" logo	0.09	-0.02	0.20	0.10	-0.08	0.28
"Greenbelt" logo	-0.02	-0.13	0.09	0.13	-0.04	0.31
"Local Food Plus" logo	0.04	-0.08	0.16	0.15	-0.05	0.35
Generic local and organic logo	0.12	0.02	0.21	0.09	-0.10	0.29

²Within the linear probability results, bold indicates that the confidence interval does not include 5, which implies that the element had, at a minimum, some significant impact on the likelihood of purchase.

³Within the linear regression results, bold indicates that the confidence interval does not include 0, which implies that we are confident, at the 95% level, that the element provided a significant premium/discount.

⁴CND = Canadian dollars.

implication of this finding is that consumers may purchase produce with a "Foodland Ontario" logo, but not at a higher price, which implies increased sales through quantity sold, not increased WTP.

In regard to the income categories (Table 4), we can see that different labels provide different meanings to different incomes. For instance, the "Foodland Ontario" label increases the probability of purchase for respondents making \$50,001 to \$75,000; however, respondents making \$75,001 to \$100,000 are more responsive to the "Canada Organic" and a generic local and organic label. Furthermore, we can see that price premiums are different for different income categories with the \$75,001 to \$100,000 income bracket being the most responsive to the presence of a logo. Given these findings, producers and retailers that are targeting specific areas should be cognizant of the logos that are displayed given the effectiveness of a logo is dependent on the income area being targeted.

Consumer segments: total sample. Examining the results associated with the total sample indicates that the "Foodland Ontario" label provides a large impact on a consumer's likelihood of purchase. As noted previously, a probability score of between 5 and 10 represents a significant impact, whereas 10 to 15 represents a very important impact. Examining Table 5 we can see that the average impact for the "Foodland Ontario" label is 10 with the 95% confidence interval placing the true impact between 6 and 14, which implies that, overall, consumers rely on the "Foodland Ontario" logo as an important factor. This could be a direct result of the program's longer-term operation because it has built up brand equity that consumers identify with. Of further note, there is a significant premium of \$0.10/lb on WTP from displaying the "Foodland Ontario" label (Table 6). Examination of the other local/organic logo indicates that no other logo increases the likelihood of purchasing; however, several logos (i.e., "Canada Organic," "Verified Organic," and the generic local and organic label) provide price premiums.

Also of interest is the fact that this study found lower premiums for local and organic logos compared with two recent studies using U.S. consumers. For instance, Darby et al. (2008) found a premium of \$0.48 and \$0.92 for grocery store versus direct market shoppers when comparing "local" versus "U.S." production region for strawberries, whereas Yue and Tong (2009) found organic, local, and organic/local premiums to be \$0.67, \$0.67, and \$1.06 per pound for tomatoes, which are higher than our results for the total sample. These differences could be the result of differences between Canadian and U.S. consumers, but more research should be conducted to determine if that is in fact the case. Of note, however, is that the results from these studies produced premiums that were in -line with one of our market segments, discussion subsequently, but consistently higher for the total sample and the other two market segments.

Table 4. Effect of local/organic label on the likelihood of purchase and willingness to pay for fruit and vegetables by income category.²

Linear probability model: impact of element ^a																						
Respondents per category	\$25,000 or less (CND)			\$25,001 to \$50,000 (CND)			\$50,001 to \$75,000 (CND)			\$75,001 to \$100,000 (CND)			\$100,001 to \$150,000 (CND)			\$150,001 to \$200,000 (CND)			Greater than \$200,001 (CND)			
	16%			25%			25%			16%			12%			4%			1%			
	Avg	LCL	UCL	Avg	LCL	UCL	Avg	LCL	UCL	Avg	LCL	UCL	Avg	LCL	UCL	Avg	LCL	UCL	Avg	LCL	UCL	
Constant	59	41	78	63	47	79	58	42	73	48	29	67	48	29	68	60	28	92	32	-40	104	
“Canada Organic” logo	4	-6	14	-5	-14	3	-3	-13	6	26	16	36	5	-9	18	4	-18	27	40	-13	93	
“Verified Organic” logo	-5	-15	5	-2	-9	6	3	-6	11	13	3	24	-4	-17	9	-10	-21	1	18	-31	66	
“Foodland Ontario” logo	7	-3	17	3	-6	13	18	12	25	13	4	22	1	-7	10	15	-3	33	46	-3	94	
“Greenbelt” logo	5	-5	15	-7	-15	1	0	-8	8	11	1	21	-4	-15	8	3	-13	19	11	-60	82	
“Local Food Plus” logo	-5	-15	5	5	-3	14	6	-3	15	12	1	23	1	-13	15	18	-1	36	47	15	79	
Generic local and organic logo	-3	-11	5	-5	-14	4	7	-1	15	23	12	34	9	-6	24	10	-4	24	18	3	32	

Linear regression model: willingness to pay (per pound) ^a																						
Respondents per category	\$25,000 or less (CND)			\$25,001 to \$50,000 (CND)			\$50,001 to \$75,000 (CND)			\$75,001 to \$100,000 (CND)			\$100,001 to \$150,000 (CND)			\$150,001 to \$200,000 (CND)			Greater than \$200,001 (CND)			
	Average			Average			Average			Average			Average			Average			Average			
	LCL	UCL	UCL	LCL	UCL	UCL	LCL	UCL	UCL	LCL	UCL	UCL	LCL	UCL	UCL	LCL	UCL	UCL	LCL	UCL	LCL	UCL
Constant	2.20	1.63	2.77	1.96	1.64	2.77	1.72	1.47	1.98	1.60	1.20	2.00	1.90	1.33	2.47	2.34	1.73	2.96	1.01	0.12	1.90	
“Canada Organic” logo	0.10	-0.12	0.32	-0.02	-0.20	0.15	0.15	-0.01	0.31	0.45	0.24	0.66	0.33	-0.01	0.68	-0.19	-0.66	0.28	0.08	-0.42	0.59	
“Verified Organic” logo	0.00	-0.24	0.25	0.14	0.00	0.28	0.13	-0.01	0.28	0.39	0.20	0.58	0.43	0.08	0.78	0.01	-0.34	0.37	0.00	-0.17	0.18	
“Foodland Ontario” logo	-0.12	-0.35	0.11	0.15	-0.03	0.32	0.05	-0.10	0.20	0.44	0.19	0.69	-0.04	-0.26	0.18	0.02	-0.54	0.58	-0.16	-1.05	0.73	
“Greenbelt” logo	0.08	-0.21	0.38	-0.12	0.29	0.06	0.04	-0.08	0.16	0.17	-0.05	0.39	0.03	-0.26	0.33	-0.23	-0.70	0.25	-0.35	-1.20	0.50	
“Local Food Plus” logo	-0.18	-0.43	0.08	0.08	-0.11	0.27	0.14	-0.03	0.32	0.23	0.02	0.45	0.13	-0.20	0.46	-0.31	-0.61	-0.01	-0.33	-1.36	0.69	
Generic local and organic logo	-0.04	-0.22	0.14	0.02	0.13	0.17	0.10	-0.03	0.23	0.45	0.25	0.66	0.22	-0.10	0.53	-0.18	-0.42	0.05	-0.35	-1.23	0.54	

^zLCL = lower confidence limit; UCL = upper confidence limit; CND = Canadian dollars.

Within the linear probability results, bold indicates that the confidence interval does not include 5, which implies that the element had, at a minimum, some significant impact on the likelihood of purchase.

^{xw}With in the linear regression results, bold indicates that the confidence interval does not include 0, which implies that we are confident, at the 95% level, that the element provided a significant premium/discount.

It seems to be also clear that quality labels are associated with discounts (Table 6). For instance, a label that identifies a product as “tastes good” is discounted by \$0.08 compared with no label, whereas “great quality is undeniable” and “appearance so attractive” are met with discounts of \$0.12 and \$0.10, respectively. A possible explanation for the negative WTP for quality labels is most likely driven by the oversaturation of quality labels within produce marketing and the failure of such labels to deliver produce that is of a higher quality. Unlike objective measurements, e.g., local and organic labels, which are only issued given certain criteria are met, quality labels are more subjective whereby produce of different quality ranges can have the same quality label.

Segment 1. Segment 1 includes 130 respondents (47% total sample). Consumers within this segment already have a high predisposition for purchasing fresh produce, which is reinforced by the significance of the six visuals of fruits and vegetables presented in the concepts (Table 5). Also of interest is that the only local/organic logo that is close to having a positive impact is the “Foodland Ontario” logo. Given the examination of the WTP values in Table 6 we see that none of the logos provide either a premium or discount.

Also, consumers within this segment displayed a premium of \$0.15 for produce labeled “environmentally friendly” while discounting produce from a farmers’ market by \$0.12. Given consumers within this segment had a predisposition to purchase all types of produce and the lack of significance for local/organic logos, we termed this segment as confident in the produce made in Ontario.

Segment II. Segment II included 24.5% of the sample and was termed “In Organic We Trust.” This segment was highly influenced by the presence of both local and organic logos with organic logos having a little more impact. For instance, the “Canada Organic” logo was considered an extremely impactful element as was the “Verified Organic” logo; however, the “Canada Organic” logo had a slightly higher impact as can be seen by the LPM estimate of 26 for “Canada Organic” and 19 for “Verified Organic” (Table 5). Another interesting finding is that the “Greenbelt” logo was also considered an impactful logo although it is not used for food marketing, which implies that this segment places a high amount of value on any type of certification, especially organic certification. With regard to WTP, we see large premiums associated with most all logos and labeling. For instance, the “Verified Organic” logo has a \$0.48 premium and “Canada Organic” a \$0.43 premium. The premiums for this segment are more in line with those found by Darby et al. (2008) and Yue and Tong (2009). Furthermore, this segment did not have any other factors that increased their likelihood of purchase or WTP, except for \$0.19 when labeled “support of local economy.”

Segment III. Segment III consisted of 28.5% of consumers and were termed the "socially responsible locavores." This

Table 5. Impacts on likelihood of purchase for the external attribute levels from the linear probability model by segment and for the whole sample.^z

	Segment I: confident in Ontario produce			Segment II: in organic we trust			Segment III: socially responsible locavores			Total		
	Avg	Lower confidence limit	Upper confidence limit	Avg	Lower confidence limit	Upper confidence limit	Avg	Lower confidence limit	Upper confidence limit	Avg	Lower confidence limit	Upper confidence limit
Constant	60	49	70	44	28	61	62	48	75	57	49	64
Type of produce												
Apples	19	13	24	9	-1	19	-2	-10	5	10	6	15
Carrots	19	13	26	-4	-12	5	-6	-13	1	7	2	11
Garlic	17	10	23	-4	-13	5	-1	-8	6	7	2	11
Potatoes	16	10	23	0	-8	7	-6	-13	2	6	2	10
Salad greens	12	6	18	-20	-29	-10	-4	-12	4	0	-5	4
Strawberries	26	21	32	1	-8	10	-1	-9	6	12	8	17
Information signals												
"Canada Organic" logo	-5	-12	1	26	16	36	0	-7	7	4	-1	8
"Verified Organic" logo	-10	-15	-4	19	9	29	3	-4	10	1	-3	5
"Foodland Ontario" logo	4	-2	11	22	15	30	9	2	15	10	6	14
"Greenbelt" logo	-7	-13	-2	15	7	24	2	-5	9	1	-3	5
"Local Food Plus" logo	-6	-11	0	25	14	37	7	0	14	5	1	10
Generic focal and organic logo	-7	-13	0	23	14	33	11	4	17	6	1	10
Perceived intrinsic benefit												
"Think grown in store"	1	-4	6	5	-3	13	2	-4	7	2	-1	6
"Family deserves nutritious food"	-2	-8	3	3	-5	11	2	-5	9	0	-4	4
"Tastes good"	-3	-8	3	-5	-13	3	-5	-12	1	-4	-8	0
"Good food is good food"	-9	-15	-3	-6	-15	3	-15	-22	-8	-10	-14	-6
"Great quality is undeniable"	-4	-9	1	0	-7	7	-8	-15	-1	-4	-8	0
"Appearance so attractive"	-8	-13	-3	9	1	17	-13	-20	-5	-5	-9	-1
Availability												
"All major supermarkets"	-2	-7	3	1	-8	9	0	-6	6	-1	-4	3
"Farmers' markets"	-6	-12	-1	-4	-12	4	-3	-11	4	-5	-9	-1
"Specialty stores"	-12	-18	-6	3	-5	10	-16	-24	-8	-10	-14	-5
"Health stores"	-12	-18	-6	-8	-16	0	-30	-39	-22	-16	-20	-12
"Everywhere you shop"	-4	-9	2	-4	-11	4	12	5	19	1	-3	5
"Discount supermarkets"	-4	-9	1	-3	-10	5	4	-3	11	-2	-5	2
Occasion of purchase												
"Incorporate into everyday"	3	-2	8	4	-5	12	-8	-14	-3	0	-4	3
"Serve to guests"	-1	-7	4	2	-6	11	2	-4	9	1	-3	5
"Holidays or special occasions"	-2	-7	3	-1	-9	7	-9	-13	-4	-4	-7	0
"For family"	-3	-9	2	2	-6	11	-7	-14	-1	-3	-7	1
"In season"	0	-4	4	4	-4	12	0	-6	7	1	-2	5
"Lower prices"	2	-3	8	7	-2	16	4	-3	11	4	0	8
Emotional response												
"Environmentally friendly"	-4	-9	2	-4	-12	5	14	7	20	1	-3	5
"Making a healthy choice"	2	-3	7	-5	-13	2	12	5	18	3	-1	6
"Peace of mind"	5	0.2	11	-9	-18	-1	10	3	17	3	-2	7
"Support of local economy"	-5	-10	1	-10	-18	-2	2	-4	8	-4	-8	-1
"Making a difference"	-4	-9	1	-14	-21	-6	5	-2	11	-4	-8	0
"Equitable treatment"	-4	-10	1	-3	-12	7	8	2	14	0	-4	3

^zWithin the linear probability results, bold indicates that the confidence interval does not include 5, which implies that the element had, at a minimum, some significant impact on the likelihood of purchase.

Table 6. Willingness to pay per pound (Canadian) for the levels associated with the external attributes as obtained from the linear regression model by segment and for the whole sample.^z

	Segment I: confident in Ontario produce				Segment II: in organic we trust				Segment III: socially responsible locavores				Total	
	Avg	Lower confidence limit	Upper confidence limit		Avg	Lower confidence limit	Upper confidence limit		Avg	Lower confidence limit	Upper confidence limit		Avg	Upper confidence limit
Constant	1.83	1.59	2.06		1.74	1.38	2.09		2.11	1.79	2.43		1.89	2.05
Type of produce														
Apples	0.05	-0.09	0.19		-0.07	-0.30	0.15		-0.11	-0.27	0.05		-0.03	0.07
Carrots	-0.09	-0.23	0.06		-0.29	-0.47	-0.11		-0.36	-0.49	-0.23		-0.22	-0.13
Garlic	-0.16	-0.29	-0.02		-0.42	-0.63	-0.21		-0.44	-0.61	-0.28		-0.30	-0.21
Potatoes	-0.05	-0.19	0.09		-0.17	-0.36	0.01		-0.39	-0.54	-0.23		-0.18	-0.09
Salad greens	0.07	-0.09	0.23		-0.17	-0.38	0.03		-0.06	-0.23	0.10		-0.03	0.07
Strawberries	0.48	0.34	0.62		0.43	0.21	0.66		0.14	-0.00	0.28		0.37	0.47
Information signals														
“Canada Organic” logo	0.00	-0.12	0.12		0.43	0.21	0.66		0.18	0.03	0.33		0.16	0.25
“Verified Organic” logo	0.05	-0.06	0.16		0.48	0.25	0.71		0.16	0.03	0.28		0.19	0.27
“Foodland Ontario” logo	0.03	-0.10	0.16		0.35	0.15	0.54		-0.01	-0.14	0.12		0.10	0.18
“Greenbelt” logo	-0.04	-0.17	0.08		0.17	-0.04	0.37		-0.02	-0.18	0.13		0.01	0.10
“Local Food Plus” logo	-0.07	-0.21	0.07		0.31	0.09	0.54		0.07	-0.07	0.21		0.07	0.16
Generic local and organic logo	-0.09	-0.19	0.01		0.47	0.26	0.68		0.14	0.02	0.26		0.11	0.19
Perceived intrinsic benefit														
“Think grown in store”	-0.11	-0.23	0.01		0.09	-0.06	0.25		-0.13	-0.27	0.00		-0.06	0.01
“Family deserves nutritious food”	-0.03	-0.15	0.08		0.00	-0.17	0.17		-0.01	-0.13	0.12		-0.02	0.06
“Tastes good”	-0.05	-0.18	0.09		-0.04	-0.18	0.10		-0.18	-0.31	-0.06		-0.08	-0.01
“Good food is good food”	-0.04	-0.18	0.09		-0.06	-0.20	0.09		-0.14	-0.31	0.02		-0.08	0.01
“Great quality is undeniable”	-0.12	-0.24	0.00		-0.03	-0.16	0.11		-0.19	-0.35	-0.04		-0.12	-0.04
“Appearance so attractive”	-0.07	-0.18	0.04		-0.02	-0.17	0.12		-0.21	-0.35	-0.07		-0.10	-0.02
Availability														
“All major supermarkets”	-0.04	-0.12	0.05		0.13	-0.04	0.29		0.02	-0.11	0.16		0.02	0.09
“Farmers’ markets”	-0.12	-0.24	-0.00		0.10	-0.05	0.26		0.07	-0.08	0.22		-0.01	0.07
“Specialty stores”	-0.05	-0.19	0.09		0.17	-0.00	0.34		-0.20	-0.35	-0.05		-0.04	0.05
“Health stores”	-0.11	-0.22	0.01		0.10	-0.07	0.26		-0.18	-0.35	-0.00		-0.08	0.01
“Everywhere you shop”	-0.04	-0.15	0.08		-0.04	-0.18	0.11		-0.04	-0.17	0.10		-0.04	0.04
“Discount supermarkets”	-0.02	-0.13	0.09		0.03	-0.12	0.18		-0.26	-0.38	-0.14		-0.08	-0.00
Occasion of purchase														
“Incorporate into everyday”	-0.04	-0.14	0.05		-0.05	-0.21	0.11		-0.09	-0.22	0.04		-0.06	0.01
“Serve to guests”	-0.08	-0.22	0.06		0.03	-0.14	0.21		-0.01	-0.14	0.13		-0.03	0.05
“Holidays or special occasions”	0.03	-0.08	0.14		0.02	-0.17	0.21		-0.15	-0.26	-0.03		-0.02	0.05
“For family”	0.10	-0.02	0.21		0.03	-0.18	0.23		-0.19	-0.33	-0.06		0.00	0.08
“In season”	0.00	-0.12	0.13		-0.07	-0.23	0.09		-0.12	-0.27	0.03		-0.05	0.03
“Lower prices”	-0.05	-0.17	0.06		-0.08	-0.22	0.06		-0.17	-0.29	-0.04		-0.09	-0.02
Emotional response														
“Environmentally friendly”	0.15	0.03	0.28		0.10	-0.09	0.29		0.12	-0.02	0.25		0.13	0.21
“Making a healthy choice”	0.13	-0.00	0.25		-0.05	-0.20	0.11		0.06	-0.05	0.18		0.07	0.14
“Peace of mind”	0.13	-0.00	0.27		0.00	-0.17	0.16		0.06	-0.07	0.19		0.08	0.16
“Support of local economy”	0.00	-0.09	0.10		0.19	0.04	0.34		-0.05	-0.18	0.07		0.03	0.10
“Making a difference”	-0.06	-0.17	0.05		-0.03	-0.22	0.15		0.06	-0.06	0.18		-0.02	0.06
“Equitable treatment”	0.00	-0.12	0.12		0.11	-0.04	0.25		0.07	-0.04	0.17		0.05	0.12

^zWithin the linear regression results, bold indicates that the confidence interval does not include 0, which implies that we are confident, at the 95% level, that the element provided a significant premium/discount.

segment did not show any significant LPM estimates for local and organic logos; however, “environmentally friendly” and “mak-

ing a healthy choice” labels can be described as important statements (Table 5). Despite the lack of factors that were considered to be

important in increasing the likelihood of purchase, several elements did have an impact on WTP. For instance, this segment would pay

Table 7. Marginal probabilities of segment membership associated with a multinomial logit model by segment.

Variables ^z	Segment I		Segment II		Segment III	
	Prob. (Segment I)	P	Prob. (Segment II)	P	Prob. (Segment III)	P
Gender: (1 = male)	-0.112	0.200	0.147	0.042	-0.034	0.633
Age (years)						
29 to 34	-0.028	0.849	-0.053	0.552	0.081	0.552
35 to 40	0.045	0.756	0.026	0.814	-0.071	0.544
41 to 45	0.283	0.028	-0.120	0.223	-0.163	0.071
46 to 54	-0.084	0.598	-0.075	0.448	0.159	0.294
55 to 60	-0.088	0.573	0.030	0.823	0.057	0.698
Region (1 = Niagara)	-0.018	0.856	-0.008	0.922	0.026	0.759
Income (dollars)						
25,000 to 50,000	-0.262	0.039	0.243	0.113	0.018	0.865
50,000 to 75,000	-0.422	0.000	0.293	0.038	0.130	0.305
75,000 to 100,000	-0.393	0.002	0.416	0.019	-0.022	0.854
100,000 to 150,000	-0.287	0.037	0.320	0.071	-0.033	0.790
Greater than 150,000	-0.054	0.826	-0.074	0.539	0.129	0.623
Education						
College certificate/diploma	0.055	0.661	0.132	0.269	-0.187	0.011
Associate's degree	0.284	0.077	-0.053	0.717	-0.231	0.000
Bachelor's degree	-0.086	0.541	0.222	0.080	-0.136	0.100
Some graduate	-0.046	0.787	0.208	0.217	-0.162	0.028
Master's degree	-0.158	0.324	0.365	0.029	-0.206	0.001
PhD degree	-0.267	0.185	0.373	0.146	-0.106	0.452
Household: no. of adults (continuous)	0.104	0.024	-0.051	0.148	-0.054	0.179
Household: no. of kids (continuous)	-0.053	0.258	0.006	0.843	0.047	0.303
Sustainable food knowledge						
Some	-0.025	0.874	0.017	0.881	0.008	0.944
Very	0.058	0.766	-0.156	0.174	0.098	0.533
Organic food knowledge						
Some	-0.095	0.586	0.035	0.761	0.059	0.701
Very	-0.315	0.102	0.237	0.190	0.078	0.707
Local food knowledge						
Some	0.419	0.017	-0.274	0.127	-0.145	0.297
Very	0.401	0.025	-0.231	0.057	-0.170	0.191
Organic fresh fruit/vegetable purchases						
10% to 20%	-0.515	0.006	-0.139	0.320	0.654	0.001
21% to 50%	-0.509	0.007	-0.160	0.222	0.669	0.001
Greater than 50%	-0.520	0.000	-0.175	0.077	0.695	0.000
Ontario fresh fruit/vegetable purchases						
10% to 20%	0.303	0.070	-0.119	0.379	-0.184	0.059
21% to 50%	0.283	0.114	-0.122	0.417	-0.161	0.148
Greater than 50%	0.284	0.103	-0.100	0.455	-0.184	0.054
Imported fresh fruit/vegetable purchases						
10% to 20%	0.237	0.308	-0.121	0.361	-0.116	0.468
21% to 50%	0.256	0.299	-0.177	0.249	-0.079	0.672
Greater than 50%	0.387	0.074	-0.132	0.385	-0.254	0.128
Try new recipes (1 = yes)	-0.117	0.269	-0.005	0.955	0.123	0.081
Read food/drink magazine (1 = yes)	0.030	0.730	-0.048	0.522	0.018	0.784
Try new foods/dishes (1 = yes)	-0.237	0.026	0.082	0.326	0.155	0.055
Try new foods at restaurant (1 = yes)	-0.011	0.907	0.047	0.514	-0.036	0.642
Buy new food products (1 = yes)	0.121	0.253	-0.095	0.311	-0.026	0.772
Strong interest in food (1–5 scale) ^y	0.133	0.066	-0.017	0.734	-0.116	0.034
Extra time to find deal (1–5 scale) ^y	0.036	0.424	-0.033	0.392	-0.003	0.927
Food is somewhat pleasurable (1–5 scale) ^y	0.076	0.309	-0.084	0.093	0.008	0.901
Food purchased matters a lot (1–5 scale) ^y	-0.120	0.105	0.156	0.020	-0.035	0.602
Being smart shopper worth time (1–5 scale) ^y	-0.113	0.139	0.021	0.754	0.092	0.167
How often eat fresh whole fruits (times/month)	0.059	0.430	-0.034	0.540	-0.025	0.706
How often eat fresh/cooked vegetables (times/month)	-0.104	0.195	0.043	0.451	0.061	0.392
Shop at large chain grocery store (1 = yes)	0.013	0.896	-0.047	0.562	0.033	0.691
Shop at independent grocery store (1 = yes)	0.117	0.163	-0.026	0.685	-0.092	0.177
Shop at discount grocery store (1 = yes)	-0.010	0.914	0.018	0.813	-0.008	0.915
Shop at mass merchandiser/discount department store (1 = yes)	-0.210	0.071	-0.138	0.045	0.348	0.008
Shop at warehouse or club store (1 = yes)	0.314	0.010	-0.040	0.719	-0.274	0.000
Shop at farmers' market or at farm (1 = yes)	-0.212	0.011	0.144	0.056	0.068	0.376
Shop at ethnic grocery store (1 = yes)	-0.001	0.990	-0.027	0.691	0.028	0.734
Shop at other type of store (1 = yes)	-0.342	0.001	0.130	0.417	0.212	0.199

^zBase groups: 25 to 28 years, less than \$25,000, high school diploma or less, sustainable food knowledge = none/indifferent; organic food knowledge = none/indifferent; local food knowledge = none/indifferent; organic purchases = 0% to 10%; imported purchases = 0% to 10%; Ontario purchases = 0% to 10%.

^yAgreement scale in which 1 = “disagree,” 2 = “neither agree or disagree,” 3 = “agree,” and 2 and 4 are intermediate responses.

^xWithin the marginal effects, bold coefficients are statistically significant at the 0.10 level.

a higher premium for organic logos while discounting quality labels. The “Canada Organic” logo had the highest premium of \$0.18, whereas an attractive appearance was discounted by \$0.21 (Table 6).

This segment also had elements that were not important to WTP in other segments that were now considered significant. For instance, produce sold in specialty and health stores along with discount supermarkets saw price discounts of \$0.20, \$0.18, and \$0.26, respectively. We also see that the occasion of purchase elements played a significant role. For instance, holidays/special occasions and family occasions see a discount of \$0.15 and \$0.19, respectively. At first glance this seems to be counterintuitive; however, it may be that produce could be seen as a secondary item at these events, whereby consumers pay less so that they can spend more on other items that are the centerpiece of the occasion.

Consumer profiles. The consumer profile that characterizes Segment I is lower income, higher local food knowledge, higher purchases of produce, less purchases of organic produce, not willing to try new foods, but have a strong interest in foods (Table 7). For instance, consumers who have some or are very knowledgeable about local foods are 41.9% and 40.1%, respectively, more likely to be in this segment compared with consumers who have no food knowledge or are indifferent. We can also see that Segment I consumers are more likely to shop at warehouse stores (31.4%), whereas being less likely to shop at mass merchandisers (–21%), farmers’ markets (–21.2%), and other store types (–34.2%).

In regard to Segment II, we see that this segment is made up of higher-income consumers not very knowledgeable about local produce while being more likely to shop at a farmers’ market. For instance, a consumer who shops at a farmers’ market is 14.4% more likely to be in this segment. Also of keen interest is that a respondent was more likely to be a member as they increasingly agree that food purchased matters a lot whereas being less likely to be a member when they increasingly agree that food is somewhat pleasurable. For instance, as a consumer increasingly agrees that the food purchased matters a lot, they are 15.6% more likely to be a member of this segment.

The consumer profile associated with Segment III is that of a lower educated consumer, organic purchaser, with differences in local purchasing habits, that are willing to try both new recipes and new foods, and that are more likely to shop at a mass merchandiser. Of interest is the non-local buyers who purchase between 10% to 20% and greater than 50% of Ontario produce are –18.4% and –18.4% less likely to be in this segment, which tends to imply that increased purchasing of local does not dictate a “locavore.” “Locavores” tend to be local purchasers that are low- (less than 10%) and midlevel (21% to 50%). Also of interest from this segment is that consumers purchasing between 10% to 20%, 21% to 50%, and greater than 50% of produce as organic are 65.4%, 66.9%, and 69.5%, respectively, more likely to be in this segment.

Conclusions

Results from this study provide several interesting insights that can help producers and policymakers understand Canadian consumers’ views on produce purchasing. First, local and organic logo effectiveness cannot be judged solely on how much of a premium the logo generates. To gain a more accurate measure of a logo’s effectiveness, we must account for how much it increases likelihood of purchase as well as any increased premium. As these results demonstrate, the “Foodland Ontario” logo does not increase WTP for Segment I; however, it does increase Segment I’s likelihood of purchasing. This increase in likelihood is perhaps just as important as increasing WTP given traditionally niche markets for local produce can now expand to other consumer segments that have had a tendency to not value local produce with increased premiums.

Through identification of market segments and the characteristics that drive segment membership, producers and policymakers now have a clearer understanding of which consumers are most likely to value a logo and which external factors drive purchasing of fruits and vegetables. Although producers (better business decisions) and policymakers (increase healthy eating) can potentially use the information for different purposes, by understanding the consumer profiles, the information can be used to increase fruit and vegetable consumption, thereby improving society’s overall health.

Although our results begin to allow for a better understanding of the extrinsic cues that drive the Canadian consumer’s decision to purchase fruits and vegetables, several avenues of research still need to be addressed in future research such as identifying differences between Canadian and U.S. consumers in regard to local/organic produce purchasing, factors that would influence non-local/organic produce buyers to purchase local/organic produce, and the value of local/organic logos on consumers who purchase different amounts of local/organic produce.

Literature Cited

- Agriculture and Agri-Food Canada. 8 June 2010. <<http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1188227730017&lang=eng>>.
- Baker, G.A. 1998. Strategic implications of consumer food safety preferences—Consumer concerns and willingness-to-pay. *Intl. Food Agribus. Mgt. Rev.* 1:451–463.
- Baker, G.A. 1999. Consumer preferences for food safety attributes in fresh apples: Market segments, consumer characteristics, and marketing opportunities. *J. Agr. Resour. Econ.* 24:80–97.
- Baker, G.A. and P.J. Crosbie. 1994. Consumer preferences for food safety attributes: A market segment approach. *Agribusiness. Intl. J.* 10: 319–324.
- Bretton-Clark. 1992. Conjoint analyzer, Version 3. Bretton-Clark, Morrisstown, NJ.
- Britnell, A. 2010. Home grown. *Canadian Grocer.* April:17–21.
- Campbell, B.L., R.G. Nelson, R.C. Ebel, and W.A. Dozier. 2006. Mandarin attributes preferred by consumers in grocery stores. *HortScience* 41:664–670.

- Campbell, B.L., R.G. Nelson, R.C. Ebel, W.A. Dozier, J.L. Adrian, and B.R. Hockema. 2004. Fruit quality characteristics of satsuma mandarins that affect consumer preferences. *Hort-Science* 39:1664–1669.
- Canada Organic Growers. 11 June 2010. <<http://www.cog.ca/index.php?page=consumers-and-standards>>.
- Cranfield, J., B.J. Deaton, and S. Shellikeri. 2009. Evaluating consumer preferences for organic food production standards. *Canadian J. Agr. Econ.* 57:99–117.
- Darby, K., M.T. Batte, S. Emst, and B. Roe. 2008. Decomposing local: A conjoint analysis of locally produced foods. *Amer. J. Agr. Econ.* 90:476–486.
- DeLory, A. 2010. Food fight. *Canadian Grocer.* April:9–11.
- Frank, C.A., R.G. Nelson, E.H. Simonne, B.K. Behe, and A.H. Simonne. 2001. Consumer preferences for color, price, and vitamin C content of bell peppers. *HortScience* 36:795–800.
- Gooch, M., D. Laplain, K. Stiefelmeyer, N. Mar-enick, A. Felfel, F. Ingrassia, L. Martin, C. Siren, T. Lamb, B. Dent, and J. MacTavish. 2009. Consumer market research strategic study for fresh grapes and fresh and processed apples and tender fruit and 2008 orchard fruit and vineyard quality assessment throughout the value chain. 11 June 2010. <<http://www.vcmtools.ca/pdf/Vineland%20Final%20111009.pdf>>.
- Griffiths, W.E., R.C. Hill, and G.G. Judge. 1993. Learning and practicing econometrics. John Wiley and Sons, Inc., New York, NY.
- Hughson, A., H. Ashman, V. de la Hueraga, and H. Moskowitz. 2004. Mind-sets of the wine consumer. *J. Sensory Studies* 19:85–105.
- Kotler, P. and G. Armstrong. 2001. Principles of marketing. 9th Ed. Prentice Hall, Upper Saddle River, NJ.
- Lin, B., S. Payson, and J. Wertz. 1996. Opinions of professional buyers toward organic produce: A case study of mid-Atlantic market for fresh tomatoes. *Agribusiness Intl. J.* 12:89–97.
- Manalo, A.B. 1990. Assessing the importance of apple attributes: An agricultural application of conjoint analysis. *N.E. J. Agr. Res. Econ.* 19:118–124.
- Moskowitz, H.R., A. Gofman, and J. Beckley. 2006a. Using high-level consumer-research methods to create a tool-driven guidebook and database for product development and marketing. *J. Sens. Stud.* 21:54–100.
- Moskowitz, H.R., A. Gofman, J. Beckley, and H. Ashman. 2006b. Founding a new science: Mind genomics. 2006 IPS-USA Conference on Internet, Processing, Systems for e-education/e-business, and Interdisciplinaries, New York, NY.
- Moskowitz, H.R. and B. Krieger. 1995. The contribution of sensory liking to overall liking: An analysis of six food categories. *Food Qual. Prefer.* 6:83–90.
- Ontario Ministry of Agriculture, Food and Rural Affairs. 31 May 2010. <<http://www.foodland.gov.on.ca/english/about.html>>.
- Poole, N.D. and K. Gray. 2002. Quality in citrus fruit: To degreen or not to degreen? *Br. Food J.* 104:492–505.
- Richards, T.J. 2000. A discrete/continuous model of fruit promotion, advertising, and response segmentation. *Agribusiness Intl. J.* 16:179–196.
- The Strategic Counsel. 2009. Ontario organics consumer uses and attitudes study. Presentation at Ontario Ministry of Agriculture, Food and Rural Affairs. Toronto, Ontario, Canada. 10 July 2009.
- Yue, C. and C. Tong. 2009. Organic or local? Investigating consumer preference for fresh produce using a choice experiment with real economic incentives. *HortScience* 44:366–371.